PATENT COOPERATION TREATY

PCT

TRANSLATION INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P0769PC			e	FOR FURTHER A	FOR FURTHER ACTION See Form PCT/IPEA/416						
International application No.				International filing da	te (day/month/year)	Priority date (day/month/year)					
PCT/JP2004/019517			517	27.12.200	4	05.01.2004					
Internatio	International Patent Classification (IPC) or national classification and IPC										
G02F1/35											
Applicant JAPAN SCIENCE AND TECHNOLOGY AGENCY											
 This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 											
2.	This REPOR	RT consists	of a total of	4	sheets, including	this cover sheet.					
3.	This report i	is also accon	npanied by Al	NNEXES, comprising:							
	a. 🛛	(sent to the a	pplicant and	to the International Bu	reau) a total of 7	sheets, as follows:					
	a. (sent to the applicant and to the International Bureau) a total of sheets, as follows: sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).										
	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental										
	. \square	Box.									
	b	(sent to the I	nternational E	Bureau only) a total of	(indicate type and number	of electronic carrier(s))					
	1	at al thanse	:	dable famos aulu a	- :d:td : th Cl	, containing a sequence listing and/or tables					
	related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).										
4.	This report	contains indi	cations relatir	ng to the following iten	ns:						
	Box	No. I	Basis of the	report							
	Box	No. II	Priority								
	Box	No. III	Non-establis	shment of opinion with	regard to novelty, inventi	ve step and industrial applicability					
	Box	No. IV	Lack of unit	y of invention							
	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement										
	Box	No. VI	Certain docu	uments cited							
	Box	No. VII	Certain defe	cts in the international	application						
	Box	No. VIII	Certain obse	ervations on the interna	tional application						
Date of submission of the demand				Date of completion of thi	s report						
					•	-					
Name and mailing address of the IPEA/JP					Authorized officer						
Facsimile No.					Telephone No.						

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/019517

Box	No. I	Basis of the repo	ort	
1.		regard to the language, that the language is ated under this item.	his report is based on the international application in the language in v	which it was filed, unless otherwise
			ranslations from the original language into the following language a translation furnished for the purposes of:	,
		international search	h (Rule 12.3 and 23.1(b))	
		publication of the i	international application (Rule 12.4)	
		_	minary examination (Rule 55.2 and/or 55.3)	
2.	recei		of the international application, this report is based on (replacement slop oan invitation under Article 14 are referred to in this report as "or	
		the international applicat	tion as originally filed/furnished	
	\bowtie	the description:		
		pages		as originally filed/furnished
		pages*	received by this Authority on	
		pages*	received by this Authority on	
	\boxtimes	the claims:		
		nos. 2-4,6,7,11,	16	as originally filed/furnished
		nos.*	as amended (together	with any statement) under Article 19
		nos.* 1,5,8-10,12	received by this Authority on	29.11.2005
		nos.*	received by this Authority on	
	\boxtimes	the drawings:		
		sheets fig. 1-13	3	as originally filed/furnished
		sheets*	received by this Authority on	
		sheets*	received by this Authority on	
		a sequence listing and/or	any related table(s) – see Supplemental Box Relating to Sequence Li	
3.	\boxtimes	The amendments have re	esulted in the cancellation of:	
		the description, page	ges	
		the claims, nos.	17,18	
		the drawings, sheet	ts/figs	
		the sequence listing	g (specify):	
		any table(s) related	d to sequence listing (specify):	
4.			ablished as if (some of) the amendments annexed to this report and ed to go beyond the disclosure as filed, as indicated in the Supplement	
		the description, page	ges	
		the claims, nos.		
		the drawings, sheet	ts/figs	
		the sequence listing	g (specify):	
		any table(s) related	to sequence listing (specify):	
*	If ite	m 4 applies, some or all o	of those sheets may be marked "superseded."	

International application No.
PCT/JP2004/019517

Вох			ticle 35(2) with regard to novelty, inventive step or industrial applicability; oporting such statement	
1.	Statement			
	Novelty (N)	Claims	1-16	YES
		Claims		NO
Inventive step (IS)		Claims	1-16	_ YES
		Claims		_ NO
	Industrial applicability (IA)	Claims	1-16	_ YES
		Claims		_ NO

2. Citations and explanations (Rule 70.7)

The inventions set forth in claims 1 to 4, 8, 9 and 12 to 16 involve an inventive step in relation to the documents that are cited in the international search report. Techniques wherein the signal light pulses that were input are subjected to linear chirping and are thereafter made to traverse a dispersion medium so as to undergo optical Fourier transformation are well known (refer to document 2 and the like), and document 1 discloses an optical Fourier transformation technique wherein an optical Kerr medium is used as the means for controlling the chirping of the signal light pulses. However, the optical Fourier transformation technique wherein an optical Kerr medium into which a control light pulse with a shape expressed by a quadratic function or a parabola has been introduced is used as the means for subjecting the input signal light pulses to linear chirping is not disclosed in any of the documents that are cited in the international search report, and would not have been obvious to a person skilled in the art.

The inventions set forth in claims 5 to 7, 10 and 11 involve an inventive step in relation to the documents that are cited in the international search report. The optical Fourier transformation technique wherein a generator for

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

generating quadratic function-type optical pulses, which is equipped with dispersion reducing fibers for reducing the absolute value of the normal dispersion in the longitudinal direction, is used as the means for generating the control light pulses that are introduced into the optical Kerr medium is not disclosed in any of the documents that are cited in the international search report, and the feature in question would not have been obvious to a person skilled in the art.

Citations:

- Document 1: L. Kh. MOURADIAN et al., "Spectro-Temporal imaging of Femtosecond Events," IEEE Journal of Quantum Electronics, Vol. 36, No. 7, (2000), pages 795 to 801
- Document 2: B. H. KOLNER, "Space-Time Duality and the Theory of Temporal Imaging," IEEE Journal of Quantum Electronics, Vol. 30, No. 8, (1994), pages 1951 to 1963
- Document 3: V. I. KURGLOV et al., "Self-Similar Propagation and Amplification of Parabolic Pulses in Optical Fibers," Physical Review Letters, Vol. 84, No. 26, (2000), pages 6010 to 6013
- Document 4: D. ANDERSON et al., "Wave-braking-free pulses in non-linear optical fibers," J. Opt. Soc.

 Am., B, Vol. 10, No. 7, (1993), pages 1185 to 1190
- Document 5: JP 05-265057 A (Nippon Telegraph And Telephone Corp.), 15 October 1993 (Family: none)